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M E M O R A N D U M
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TO: Board of Oil, Gas and Mining

FROM: Thomas N. Tetting, Engineering Geologist

SUBJECT: Western Tar Sands, Inc.
Raven Ridge Project
ACT/047/016
Uintah County, Utah

DATE: July 17, 1981

The Division staff has reviewed the Mining and Reclamation Plan submitted by Western Tar Sands, Inc., and feels that the plan meets the requirements of the Utah Mined Land Reclamation Act. The Division requests the Board's concurrence to issue tentative approval for this mining operation.

An Executive Summary is attached for your information.

Western Tar Sands, Inc., proposes to post a bond with the Division of State Lands for the amount of \$64,594 for the two year, 6.28 acre operation. The Division, again, requests approval by the Board for this amount and form of surety.

Attachment

TNT/btm

Western Tar Sands, Inc. ACT/047/016

EXECUTIVE SUMMARY

Western Tar Sands, Inc.
Raven Ridge Project
ACT/047/016

Section 16, Township 7 South, Range 25 East
Uintah County, Utah

Location: The proposed operation is located approximately 25 miles southeast of Vernal in State Section 16, one mile off of County Road 45 in the Uinta Basin.

Introduction: Western Tar Sands, Inc., proposes to implement a pilot phase program to determine the feasibility of a full scale operation. They plan on developing a surface mining operation and the associated process plant for extracting bitumen from tar sands.

Environmental Considerations:

Climate: The area is semi-arid having between 12-18 inches of rainfall.

Soils: The major soil classification is barren rock and stony or cobbly material covering 35 percent of the surface. Silty sand makes up the remainder. The SCS classification is (RW) rockland, capability unit VIII s-X, no value for farming.

Geology: The area is characterized by the presence of the Green River lacustrine formation composed of shales and siltstones and also by the Duchesne River formation fluvial sandstones and mudstones. These rocks strike south 42° east and dip about 25° to the southwest. The mineable tar sands seam is about 15 feet thick at the site and represents a transitional phase between these two formations. These rocks are between 38 and 45 million years old.

Ecology and Vegetation: Three vegetation communities are present on site.

Shrubs: juniper (11.5% cover); juniper-woodland (3.8% cover); and, sagebrush-shadscale-greasewood (29.5% cover). There are no threatened or endangered species within the area. The land is leased for winter sheep grazing.

Hydrology: No aquifers were encountered during exploration drilling which only penetrated 100 feet of strata. The drainage in the area does not have a defined intermittent stream channel but generally runs from east to west just north of the proposed pit. The soils have a high infiltration capacity and no springs exist in the project drainage basin.

Structures and Facilities: A small on-site processing plant facility will be constructed on a 1.2 acre section of the project within 600 feet of the proposed pit. This area will be fenced to provide security for equipment. Solvent processes will be tested within the enclosed system and operations are expected to continue at the rate of 10 tons/hour for 10-12 hours a day.

Mining and Reclamation Plan:

During Operations:

1. The development of the open pit/trench will begin with the removal and stockpiling of an estimated .67 to 1.5 feet of topsoil.

2. A protective earthen berm and associated drainage control precautions will be utilized to insure minimum contamination or erosion to or from any major event storm water.
3. Overburden will be removed in successive lifts exposing three months production of tar sands at one time. When a void is created by tar sands extraction, overburden mixed with processed waste will be returned to the cut.
4. Sampling and testing of processed wastes as a suitable growing medium for revegetation purposes will be maintained by a contracted company.
5. An additional 6 to 10 feet of unmixed overburden will be placed on top.

After Operations:

1. Using a D-7 dozer, associated loader and a dump truck, the pit will be completely filled and recontoured to its natural pre-existing configuration. An additional 10-15 feet of elevation may exist.
2. Upon abandonment, all plant site structures will be removed with foundations demolished and buried a minimum of four feet below the regraded surface.
3. Compacted areas will be ripped prior to the application of topsoil.
4. Upon satisfactory regrading of the site (including roads) and redistribution of topsoil, the area will be revegetated according to a designed plan. This will be deemed successful after 70 percent of the original cover has been achieved.

Impacts: This mining/processing operation will have little detrimental effect on the surrounding environment. Mitigating provisions and the remoteness of the area will lessen the impact. Surface contours although possibly raised or lowered 10-15 feet will not be overly perceptable. Potential water quality degradation is minimal as adequate measures are provided. As long as proper mining techniques and appropriate safeguards are maintained throughout the operation, environmental disturbance should be at a minimum.

Surety Estimate: The surety form will be a bond posted with the Division of State Lands for the amount of \$64,594. This will be for a two year project life and includes inflation factors (see attached bond estimate).

DIVISION OF OIL, GAS, AND MINING

BOND ESTIMATE

OPERATOR: Western Tar Sands, Inc.
MINE NAME: Raven Ridge Project
LOCATION: Section 16, T. 7 S., R. 25 E.
COUNTY: Uintah
DATE: July 17, 1981

	Operation	Amount	Rate	Cost
A.	CLEAN-UP			
	1. Removal of structures & equipment.		Lump Sum	\$ 3,450
	2. Removal of trash & debris, including hauling		Lump Sum	1,000
	3. Leveling of ancillary facilities pads and access roads. & foundation removal.		Lump Sum	3,000
B.	REGRADEING & RECONTOURING			
	1. Earthwork including haulage and grading of spoils, waste and overburden.	11 ft trench backfill, dozer	.70 cy for 5,000 cy	3,500
	2. Recontouring of highwalls and excavations.	N/A		
	3. Spreading of soil or surficial materials. Topsoil.	5,000 cy	.89 cy	4,450
C.	STABILIZATION			
	1. Soil preparation, scarification, fertilization, etc.	Native Plants est.	Lump Sum	17,584
	2. Seeding or planting.			
	3. Construction of terraces, waterbars, etc.			
D.	LABOR			
	1. Supervision.	Included in all	Calculations	
	2. Labor exclusive of bulldozer time.			
E.	SAFETY			
	1. Erection of fences, portal coverings, etc.	N/A		
	2. Removal or neutralization of explosive or hazardous materials.			
F.	MONITORING			
	1. Continuing or periodic monitoring, sampling & testing deemed necessary.	\$75/visit	4 annual x 3 yr	900
G.	OTHER			
	Fence installation & removal for protection of revegetation	2,000 ft	4.9 LF	9,800
	21.6% yearly DOT construction cost escalation x 2 yr		TOTAL	\$43,684 \$64,594